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WEATHER
THU: 68°F | 51°F
Rainy
FRI: 66°F | 52°F
Slightly sunny
SAT: 74°F | 66°F
Cloudy

Volume 139, Number 18

Thursday, September 12, 2019

Media Lab Director Joi Ito resigns Sat. over his Epstein ties

The New Yorker reports that Epstein helped to solicit $7.5 million for lab

By Jessica Shi
EDITOR IN CHIEF

Media Lab Director Joi Ito resigned Saturday afternoon following weeks of escalating revelations and outrage over his financial ties with Jeffrey Epstein.

"After giving the matter a great deal of thought, I have chosen to resign as Director of the Media Lab and as a Professor and employee of the Institute, effective immediately," Ito wrote in an email to Media Lab members obtained by *The Tech*.

An article in *The New Yorker* Friday reported that the Media Lab's relationship with Epstein, the late financier accused of sex trafficking, is far deeper than what President L.

Ito, Page 2

KEVIN LY—THE TECH

MIT entrepreneurs present their startup ideas in Kresge during Delta V Demo Day Monday.

Several dorms experience issues with their new laundry system

Per-load cost increases to $1.25 from $1.00, dorm residents must pay for laundry through the Washlava mobile app

By Kerri Lu

Starting this semester, new washers and dryers operated through the Washlava laundry platform are replacing old laundry machines in several undergraduate residence halls. The per-load cost of laundry has increased from $1.00 to $1.25, and dorm residents are now required to pay for laundry through the Washlava mobile app.

Several dorms experienced difficulties integrating the new system, as washers and dryers were temporarily unavailable during the Washlava installation period over the last couple of weeks. According to an email from Director of House Op-

Laundry, Page 2

Sixty percent or higher on math diagnostic required for 18.01 pass

Math dept. says diagnostic has been better indicator than AP

By Kristina Chen

"We found historically that some students who received a '5' on the Calculus BC exam did not have a strong grip on the fundamentals — especially of pre-calculus material (algebra, logs, trigs, etc.) — to do as well as we would like in MIT subjects," Barbara Peskin PhD '90, academic administrator of the mathematics department, wrote in an email to *The Tech*.

"When we looked at the data, we found that the math diagnostic was a better predictor of which students would do poorly," Peskin continued.

Additionally, the physics and mathematics departments revised the math diagnostic to fulfill its new objective, Peskin wrote.

Out of the more than 700 first-year students who received a five on the AP Calculus BC exam or the equiva-

Math, Page 3

MAXWELL YUN—THE TECH

Angelina Jay, an instructor in the Martin Trust Center, teaches soldering to Alex Quach '23 and Louise Lima '23 at Make Cool ShMIT Tuesday.

Eric Lander maintains he has no Epstein ties

Broad has not requested or received any funding from Epstein, Lander writes

By Kristina Chen

Eric Lander, president and founder of the Broad Institute, has continued to stand by his statement that he has no connection to Jeffrey Epstein, the late financier accused of sex trafficking. Photos have surfaced of Lander speaking with Epstein.

The photos were originally posted on a blog for Epstein's foundation, but they have since been taken down.

"The Broad had no association with him or his foundations, nor did I," Lander wrote in an email to members of the Broad.

Lee McGuire, the Broad's chief communications officer, forwarded Lander's email and wrote separately to *The Tech* that the images

Lander, Page 3

The DSL launches new pick-a-lunch program

Students are able to use a meal swipe to pay for a portable meal from Pritchett

By Wenbo Wu

The Division of Student Life launched a new pick-a-lunch pilot program earlier this month. The program is located in the Pritchett Dining Room, on the second floor of Walker Memorial. Student turnout has been limited thus far.

Pick-a-lunch is open Monday through Thursday from 11:00 a.m. to 2:00 p.m. Students are able to use a meal swipe to pay for their choice of one entrée, two sides, and a drink. Vegetarian and gluten-free options are available.

At present, only students with a meal plan can participate, according to Mark Hayes, director of campus dining, in an email sent to *The Tech*.

The DSL designed pick-a-lunch based on feedback from

Pick-a-lunch, Page 2

IN SHORT

The **last day to add half-term subjects** offered in the first half of term is Friday, Sept. 13.

MIT's first **blood drive** of the year will be from Monday, Sept. 23 to Thursday, Sept. 26 at the Stratton Student Center.

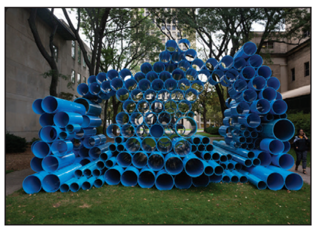
Fees and deposits for **intramural sports** are due Friday, Sept. 13.

Interested in **joining *The Tech***? Stop by for dinner Sunday at 6 p.m. or email *join@tech.mit.edu*.

Send news and tips to *news@tech.mit.edu.*

HELLO, HOW MAY I HELP YOU?

Tech Support talks food and friends. **CAMPUS LIFE, p. 7**



CHANGES TO COMMENCEMENT

Decisions were implemented without adequate consideration of student input. **OPINION, p. 4**

GREEN IS THE NEW BAD

Ito resigned, but billionaires need to also. **OPINION, p. 5**

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KEVIN LY—THE TECH

2.009 students kick off the semester in Killian Court by constructing balloon towers Monday.

Some dorms report problems

Laundry, from Page 1

erations Rich Hilton to residents of affected dorms Sept. 5, "shipping delays prevented the new laundry equipment from being installed, tested, and ready for use" by the beginning of the semester.

Housing and Residential Services (HRS) "continues to work with CSC Serviceworks and Washlava to make each house's laundry system fully operational as soon as possible," Hilton wrote in a statement to *The Tech*, noting that two dorms "experienced problems with Washlava dryer control boards."

TechCASH has been integrated with the Washlava app, and students without smartphones may borrow iTouch devices from the service desk of their residence hall.

The rise in laundry prices will "help [HRS] maintain the system for the long-term," Hilton wrote, noting that "neighboring universities charge $3 per washer/dryer cycle, and nearby coin-operated laundry facilities charge $6.25."

Baker President Hannah Mahaffey '21 wrote in an email to *The Tech* that despite the installation delay after students moved in, "laundry was free during that time, so it wasn't an issue." Mahaffey wrote that some residents found the Washlava app "annoying to use," but no "formal complaints" were reported to Baker Exec.

MacGregor President Anthony Cheng '20 said in a phone interview with *The Tech* that unclear communication between the dorms and the Division of Student Life has resulted in some confusion about the laundry system. Cheng said he was notified about the new system at a DormCon meeting in April and has since been in "semi-regular communication" with Hilton, but several other house governments were not notified until late summer.

Cheng said the price increase was "reasonable for the all-new machines," given that laundry is still "cheaper than at other colleges." Though some MacGregor residents were "very annoyed" with the "inconsistent service" of the new machines (including two broken washers and four new dryers that were not yet turned on), Cheng conceded that Washlava's "intentions were in the right place."

Next House President Jessica Tang '20 wrote in an email to *The Tech* that non-functioning dryers and the "shaky support for MIT TechCASH" have resulted in "a very frustrating and poor experience for Nexties." According to Tang, Next residents are concerned about Washlava's "lack of support for cash/coin payment," which poses a barrier for students without smartphones and prevents residents from doing laundry when there are network issues. Next Exec has contacted both Washlava and DSL about these issues but continues to be "very frustrated with the lack of clear communication," Tang said.

Burton Conner Head of House Jarrod Hayes wrote in an email to *The Tech* that since the old BC laundry system was "quite dated and subject to regular machine failure," the Washlava machines were "welcome." Hayes wrote that the new system "is glitchy but has not produced systemic failures," though BC residents have experienced "some problems with dryers offline."

In an email to *The Tech*, McCormick Head of House Flavia Cardarelli concurred with Hayes, affirming that McCormick residents "like the look and feel of having something new in the building." Despite the initial system malfunction, Cardarelli wrote, "DSL has been proactive in anticipating our needs with regards to the laundry situation."

Simmons Assistant Head of House Steven Hall wrote in an email to Simmons residents Sept. 9 that Washlava dryers in Simmons were being temporarily replaced by regular dryers. These will be operating for free until "all the technical issues are ironed out" and Washlava dryers are reinstalled. This followed a two-week lapse in dryer operations. According to Hall's email, Simmons residents are being reimbursed by the dorm for drying racks purchased in that period.

Todd Belveal, founder and CEO of Washlava, wrote in an email to *The Tech* that Washlava technology "allows universities to provide students with an intuitive mobile experience" and "provides students the ability to reserve and pay for laundry service from their smartphones, meaning they can manage their time more efficiently during the busy semester."

According to Belveal, Washlava has previously been implemented on a campus-wide scale at Monmouth University, where only "typical calibration issues" appeared during installation. In preparation to implement the new laundry system in MIT residence halls, Washlava "replicated the MIT wireless network environment in the CSC ServiceWorks facility in nearby Woburn, MA," testing the system at a smaller scale.

Besides the shipping delay and the "challenging" nature of installing the new laundry system with "student residents actively on campus," Belveal wrote that "the main challenge we encountered with the MIT rollout was a flawed power supply in the electric dryers." Washlava resolved this issue by using "an over-the-air patch to lower the power draw" and minimize the damage to the dryers.

Despite these difficulties, Belveal wrote that the continuing installation of new washers and dryers are part of a "straightforward IoT implementation" process: "1,800 students have used over 4,700 paid cycles using Washlava in less than a week. We've also seen users and cycles increase 20 percent in the last 24 hours, and that is about the onboarding pace we expect, with less than 50 support requests."

Students can visit http://www.washlava.com/support for issues with the Washlava app.

Editor's note: Jessica Tang, Next House president, is an arts writer for The Tech.

Student turnout low

Pick-a-lunch, from Page 1

students on the House Dining Committee (HDC) and across various dining studies, the most recent being a survey administered in 2017, Hayes wrote.

Pritchett was "a natural pilot location given the equipment already in that space and the presence of TechMart, both of which are operated by our campus dining partner Bon Appetit," Hayes wrote.

"It's convenient for students who can't get back to Maseeh for lunch," Gary Arthur, resident district manager for Bon Appetit, said in an interview with *The Tech*.

The Tech visited Pritchett from 11:10 to 11:30 a.m. Monday. During that time, one student shopped around before leaving. No other students were present.

"In our first few days we served 44 meals and we expect those numbers to increase as we ramp-up marketing and awareness of pick-a-lunch," Hayes wrote.

Although pick-a-lunch was designed for greater student flexibility, its operations do not always coincide with those of TechMart. Both are offered at the same location, but students are only able to use both services concurrently on Mondays and Tuesdays.

Arthur said that this was an issue. "If I'm getting lunch, I might also want to grab some strawberries or something," he explained.

Hayes wrote that he hopes to "continue to engage the HDC and meal-plan subscribers on ways to strengthen pick-a-lunch, and to continue adding value to the dining program altogether."

If any MIT community member has feedback, questions, or concerns about the pick-a-lunch pilot program, they can email foodstuff@mit.edu.

Reif sends email announcing independent investigation

Ito, from Page 1

Rafael Reif described in his apology email to the MIT community Aug. 23.

"[A]lthough Epstein was listed as 'disqualified' in M.I.T.'s official donor database, the Media Lab continued to accept gifts from him, consulted him about the use of the funds, and, by marking his contributions as anonymous, avoided disclosing their full extent, both publicly and within the university," the article said.

Most of the emails quoted in the article are between Ito, Epstein, and Peter Cohen, the then-director of development and strategy for the Media Lab, and they demonstrate a deliberate, concerted effort to keep Epstein's donations anonymous.

For example, in a 2014 email chain regarding a $100,000 donation from Epstein solicited by Ito, Ito wrote, "Make sure this gets accounted for as anonymous." Cohen emphasized in his reply, "Jeffrey money, needs to be anonymous. Thanks."

The Tech reported Aug. 15 that Epstein Interests, one of Epstein's foundations, donated $50,000 to MIT in 2012.

Reif then wrote in his Aug. 23 email that MIT received about $800,000 from Epstein or foundations controlled by Epstein over a 20-year span. All of the money went to either the Media Lab or Seth Lloyd, professor of mechanical engineering, according to Reif.

At a meeting last Wednesday, Ito said he accepted $1.2 million from Epstein for his investment funds, *The New York Times* reported.

Now, according to *The New Yorker*'s article, Epstein is "credited with securing" an additional $7.5 million for the Media Lab by helping to solicit donations.

Ito described a $2 million gift from Microsoft co-founder Bill Gates as "directed" by Epstein, according to *TheNew Yorker*. Cohen wrote in an email, "For gift recording purposes, we will not be mentioning Jeffrey's name as the impetus for this gift." A spokesperson for Gates denied that Epstein directed his donations, the article said.

Further emails appear to indicate that Epstein was the "point person for communication" with Gates and Apollo Global Management founder Leon Black, who donated $5.5 million to the lab, the article said.

Reif sent an email to the MIT community Saturday afternoon addressing *The New Yorker* article and Ito's resignation. Reif wrote that the claims in the article "demand an immediate, thorough and independent investigation" and that he has asked MIT's General Counsel to "engage a prominent law firm to design and conduct this process."

The Times wrote that Ito told them *The New Yorker* article was "full of factual errors."

"I want to thank you for … allowing me begin to try to make amends," Ito wrote in his email to the Media Lab. "I am confident the Lab will persevere."

Ito did not immediately respond to *The Tech*'s request for comment.

Zoe Anderson contributed reporting.

Nicholas Negroponte defends Joi Ito in meeting, to *Globe*

Negroponte says accepting funds with current knowledge would not be justified

By Diane Zhang

Nicholas Negroponte, who cofounded the Media Lab in 1985, has given an email statement to the Boston Globe in defense of former director Joi Ito's acceptance of funds from Jeffrey Epstein, the late financier accused of sex trafficking.

Despite expressing regret at Ito's decision in hindsight, Negroponte defended Ito in accepting Epstein's money, telling the *Globe* that he said to Ito that Ito should take Epstein's contribution and he "would say that again based on what we knew at the time."

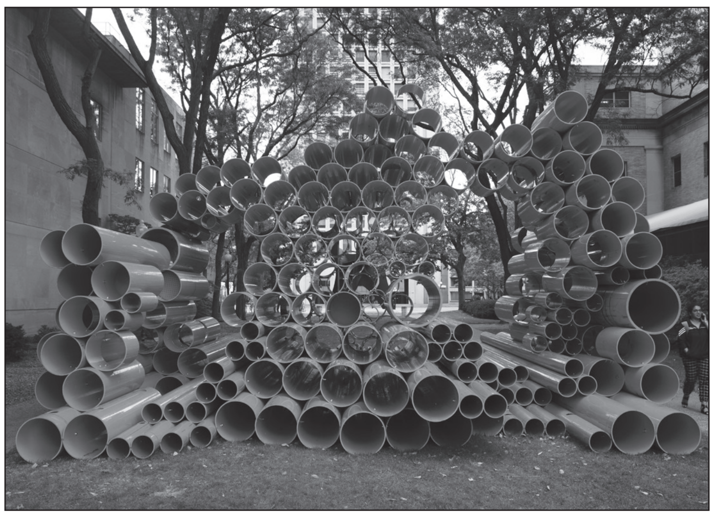
Negroponte's initial remarks were made at a closed-door meeting of the Media Lab Sept. 4. "I wanted somebody to speak up for the incredible job [Ito] has done," Negroponte said to the *Globe*. "It is hard work, day after day, and he has done very well."

Negroponte also clarified to the *Globe* that accepting the funds would not be justified with current knowledge of Epstein's sex trafficking.

Ito recently revealed that he had taken money from Epstein on behalf of the Media Lab and for his own investment funds. On Saturday, Ito resigned from his position as director of the Media Lab.

MIT has hired the law firm Goodwin Procter to further investigate Epstein's donations given to the Institute and those involved.

Negroponte did not respond to *The Tech's* request for comment.



KEVIN LY—THE TECH

"Futurity Island," installed next to Walker Memorial by the MIT Program in Art, Culture, and Technology, serves as "an infrastructure for interspecies communication and an open space for learning," according to their event description.

5.111, 7.01x, 18.01A ASE pass rates increase compared to past years

Number of students taking 18.01 ASE increases by over 40 percent

By Suleman Thaniana and Zawad Chowdhury

Students took over 1,162 Advanced Standing Exams (ASEs) during this year's orientation week, with an overall pass rate of 69.6 percent.

The pass rate for the 5.111 (Introductory Chemistry) ASE was 47.5 percent this year, drastically increasing from last year's 25.5 percent. Fifty-seven of the 120 test takers passed this year, the highest percentage in the past several years.

This year, 18.01 (Calculus I), had the lowest pass rate at 38.1 percent (down from last year's 39.4 percent). However, participation in this ASE increased, with 139 taking the test versus fewer than 100 last year.

This increase might be related to the change in policy for the class of 2023, which requires at least 60 percent in the Math Diagnostic alongside a score of five on the AP Calculus BC exam (or an international equivalent)— or passing the 18.01 ASE — to receive credit for 18.01. In the past, only a score of five on the AP exam was required.

The amount of students taking the 18.01A qualification test has also increased, with 157 test takers, of whom 68.8 percent passed.

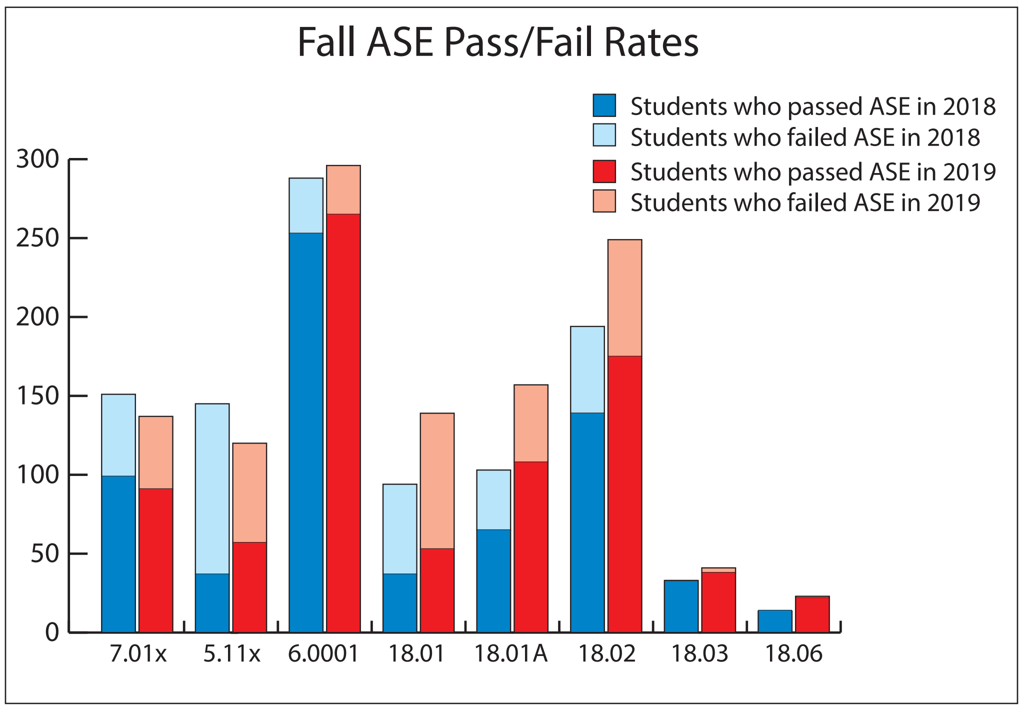
The 7.01x (Introductory Biology) ASE maintained its high pass rate from last year. Of the 137 students taking the exam, 66.4 percent passed, compared to 151 participants and a pass rate of 65.6 percent from last year.

The 18.03 (Differential Equations) and 18.06 (Linear Algebra) ASEs continue to maintain high pass rates, at 92.7 and 95.7 percent respectively.

The most popular ASE continues to be 6.0001 (Introduction to Computer Science and Programming in Python), with 296 participants this year, of which 89.5 percent passed the exam.

ASE data for 2019 and past years was provided to *The Tech* by Elizabeth Young, associate dean of advising and new student programming.

The Chemistry Department declined to give data on ASE participation and pass rates for 5.12 (Organic Chemistry). The Physics Department did not respond as of press time.



EBER NOLASCO-MARTINEZ, DEAN FANGGOHANS, ARUN WONGPROMMOON, WENBO WU—THE TECH

The calculus ASEs were taken by a larger number of students compared to last year, while chemistry and biology saw slight decreases in attempts.

Lander met Epstein 'briefly' twice

Lander, from Page 1

were taken at an April 2012 Harvard University gathering which involved many donors, faculty members, and others.

Lander wrote that he "briefly met" Epstein at two events in 2012 and did not meet with him again. Lander also wrote that he and the Broad have neither requested nor received any financial support from Epstein or his foundation.

"I'm glad we chose to have no dealings with him," Lander wrote. The Broad will also be reviewing its "practices on accepting support, to see if any changes may be appropriate."

Last Saturday, Joi Ito resigned from his position as director of MIT's Media Lab after it came to light that he had accepted and sought to conceal significant donations from Epstein.

In an email to the MIT community, President L. Rafael Reif wrote that an investigation is being conducted to determine the extent of donations received from Epstein and his associated foundations, and to identify which individuals at MIT were aware of these donations.

Seven percent did not get 18.01 credit

Math, from Page 1

lent, only 7 percent failed to receive credit for 18.01 based on their performance on the diagnostic.

Andrew Motz '23 said in an interview with *The Tech*, "It was a wake-up call to basic math." Motz felt that the diagnostic covered many concepts taught prior to calculus that he had not recently reviewed. Motz succeeded in passing the math diagnostic and received 18.01 credit.

Additionally, Peskin wrote that the mathematics department considered requiring all students, regardless of performance on the AP exam, to pass the 18.01 ASE in order to receive credit, comparable to the biology and chemistry GIRs, which cannot be replaced with AP scores.

About a dozen students who did earn a five on the AP exam or the equivalent chose to sit for the 18.01 (Calculus 1) Advanced Standing Exam. Of those students, the ones who passed the ASE also received a passing score on the math diagnostic.

Want to draw graphics that engage, provoke, and speak to the MIT community?

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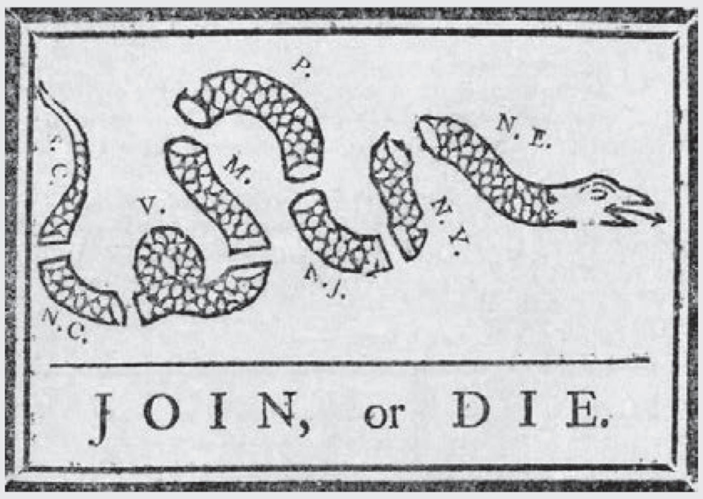

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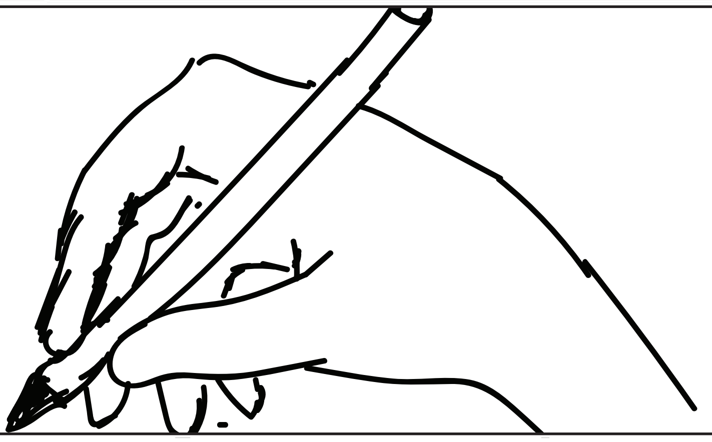

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The Tech (ISSN 0148-9607) is published on Thursdays during the academic year (except during MIT vacations) and monthly during the summer by The Tech, Room W20-483, 84 Massachusetts Avenue, Cambridge, Mass. 02139. Subscriptions are $50.00 per year (third class). **POSTMASTER:** Please send all address changes to our mailing address: The Tech, P.O. Box 397029, Cambridge, Mass. 02139-7029. **TELEPHONE:** Editorial: (617) 253-1541. Business: (617) 258-8324. Facsimile: (617) 258-8226. *Advertising, subscription, and typesetting rates available.* Entire contents © ***2019 The Tech***. *Printed by Graphic Developments, Inc.*

Failures in transparency and student input regarding drastic changes to 2020 Commencement

Degree conferral to be separated by schools or departments

By Charlotte Minsky and Mahi Elago

This spring, in a drastic departure from past tradition, MIT students will not receive their degrees together in an Institute-wide degree conferral ceremony. This sudden change came as a shock to the Undergraduate Association and class councils, and upon further review, it is clear that the process of making this decision has not been consistent with MIT’s values of transparency and informed decision-making.

The administration failed to collect feedback from current students and communicate with class councils. In addition, Commencement Committee representatives from last academic year were not aware of the status of this decision, and they reported to us that this proposal was only briefly mentioned in the context of many other draft proposals without being discussed in detail or finalized. We are extremely disappointed with these failures in communication and consultation with the undergraduate population, both at the level of the Commencement Committee and the broader student body.

> **The process of making this decision has not been consistent with MIT’s values of transparency and informed decision-making.**

The new vision for Commencement — dubbed “One-MIT+Schools” — begins with a 90-minute ceremony on the Friday morning of Commencement week, open to all students (undergraduate and graduate) and their guests and filled with MIT traditions such as speeches and the turning of the brass rat. This “One-MIT” ceremony would be followed by school- or department-specific ceremonies on Friday afternoon, during which the actual degrees would be conferred.

The “One-MIT+Schools” format mitigates several noteworthy concerns: long ceremonies, students leaving upon receiving diplomas, limited space, unpredictable extreme weather, limitations on number of guests, and more. We recognize that these concerns have negatively affected students’ and guests’ experiences for the last several years, and that any desired solution should address these concerns.

However, the “One-MIT+Schools” format also introduces new issues, which we have voiced repeatedly to Chancellor Cynthia Barnhart, Executive Officer for Commencement Gayle Gallagher, and others over several emails, one phone call, and one in-person meeting throughout the summer and early fall.

Our criticisms are:

A few weeks after we were first informed, and despite our pushback to continue the conversation, Barnhart clarified that the proposal was not actually still under consideration, and that MIT is definitely moving forward with the “One-MIT+Schools” format for the Class of 2020’s Commencement.

We were repeatedly expected to accept the decision as final and to focus on the exact implementation details of “One-MIT+Schools,” such as whether degrees will be conferred by schools or individual departments.

Some of the objections we raised may be impossible to avoid and this may well be the most viable restructuring of Commencement. However, it is impossible for the administration to have confidently arrived at that conclusion given that, from beginning to end, current undergraduates were excluded from meetings, ignored on issues, and not solicited for feedback.

The failure to collect feedback from current class years and communicate with Class Councils represents a fundamental incompatibility with our understanding of which stakeholders should be included in these discussions. In addition, the fact that prior Commencement Committee representatives reported that they did not participate in a thorough discussion or finalization process for this proposal demonstrates, at best, a lack of internal clarity that does not meet the standards we expect of institutional proceedings, and, at worst, intentional deceit.

> **We were repeatedly expected to accept the decision as final and to focus on the exact implementation details of “One-MIT+Schools.”**

Especially given the context of other recent changes that have been made unilaterally, such as the characteristics and purpose of the New Vassar dorm, the permanent elimination of mutual selection, and the now-retracted changes to the dining plan — which we hope will serve as a model for the reevaluation of major changes to student experience in light of open lines of communication and student feedback — we are dismayed by the lack of student input in this process.

In that light, elected student leaders from across campus will be soliciting feedback on these changes from current undergraduates within the next week. In keeping with our principle of transparent communication, a full dossier of materials related to this process, such as the proposal, timeline of events, the problem space, and potential solutions, is available.

We are committed to working with the administration, both on developing a plan for Commencement that reflects our mutual goals and priorities, and on investigating the failures in communication and implementation — including our own — leading up to this point.

Writing on behalf of UA Council (comprised of all dorm presidents, IFC, Panhel), the 2020 Class Council, 2021 Class Council, and 2022 Class Council, we feel it is our duty to open a gateway of comprehensive, thorough, and direct communication about this change that should have been open long since.

Mahi Elango ’20 is president of the Undergraduate Association. She currently sits on the Commencement Committee.

Charlotte Minsky ’20 is the chief of staff of the Undergraduate Association.

CORRECTIONS

The Tech omitted multiple clues for last week’s crossword due to a production error. If you would like to receive these clues, please email *general@tech.mit.edu.*

OPINION POLICY

Editorials are the official opinion of *The Tech*. They are written by the Editorial Board, which consists of Publisher Áron Ricardo Perez-Lopez, Editor in Chief Jessica Shi, Managing Editor Ivana Alardin, Executive Editor Nathan Liang, and Opinion Editor Fiona Chen.

Dissents are the signed opinions of editorial board members choosing to publish their disagreement with the editorial.

Letters to the editor, **columns**, and **editorial cartoons** are written by individuals and represent the opinion of the author, not necessarily that of the newspaper. Electronic submissions are encouraged and should be sent to *letters@tech.mit.edu*. Hard copy submissions should be addressed to *The Tech*, P.O. Box 397029, Cambridge, Mass. 02139-7029, or sent by interdepartmental mail to Room W20-483. All submissions are due by 4:30 p.m. two days before the date of publication.

Letters, columns, and cartoons must bear the authors’ signatures, addresses, and phone numbers. Unsigned letters will not be accepted. *The Tech* reserves the right to edit or condense letters; shorter letters will be given higher priority. Once submitted, all letters become property of *The Tech*, and will not be returned. Letters, columns, and cartoons may also be posted on *The Tech*’s Web site and/or printed or published in any other format or medium now known or later that becomes known. *The Tech* makes no commitment to publish all the letters received.

Guest columns are opinion articles submitted by members of the MIT or local community.

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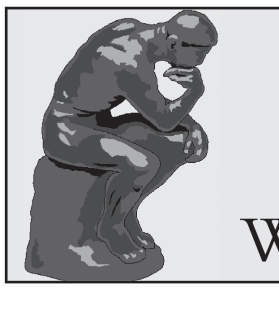
The Tech’s telephone number is (617) 253-1541. Email is the easiest way to reach any member of our staff. If you are unsure whom to contact, send mail to *general@tech.mit.edu*, and it will be directed to the appropriate person. You can reach the editor in chief by emailing *eic@tech.mit.edu*. Please send press releases, requests for coverage, and information about errors that call for correction to *news@tech.mit.edu*. Letters to the editor should be sent to *letters@tech.mit.edu*. *The Tech* can be found on the World Wide Web at *http://thetech.com*



Got a lot on your mind?
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Write for Campus Life. *join@tech.mit.edu*

GUEST COLUMN

Joi is gone, but billionaire culture remains

We have let our universities become altars to mega-wealthy donors and this cannot continue

By Cynthia Hua

Media Lab Director Joi Ito resigned this weekend after his ties to child sex trafficker Jeffrey Epstein became clear. I would also like to see Bill Gates, Reid Hoffman, and all of Epstein's other fellow billionaires consider, even for a second, resigning from the 1 percent.

The controversy at MIT over funding received from various morally bankrupt elites reflects a larger reckoning happening at universities, museums, and other institutions over billionaire philanthropy. This time last year, MIT along with Harvard and 60 other universities were reassessing their financial relationship with the Saudis following the murder of journalist Jamal Kashoggi. MIT has also taken donations from the Sacklers, who are now known to have orchestrated an opioid epidemic that has killed over 400,000 and whose donations are being reconsidered at museums and universities across the world. The name "Koch" also continues to loom large over the campus, despite the role David and Charles Koch played in dismantling our country's social safety net. I walk past these names and others everyday on campus, and they make me ashamed to be a student here.

The fallout from the Epstein funding should push us to consider what needs to change not only at MIT, but in regards to wealth in America. While he was alive, Epstein was surrounded by and protected by a billionaire culture that perpetuates the myth that some people, specifically a select group of white men, deserve vastly more than others. (Bill Gates gave to the Media Lab as part of Epstein's network of funders. Reid Hoffman, who funded the Media Lab's Disobedience Awards, held dinners where Epstein socialized with the likes of Elon Musk and Mark Zuckerberg.)

> **The super-rich ... will continue to act as gatekeepers for our society's cultural and scientific production.**

As long as billionaires exist, museums and universities and research centers will continue bending over backwards to cater to the whims of the mega-wealthy. And the super-rich, with their plethora of eccentric tendencies and moral failings, will continue to act as gatekeepers for our society's cultural and scientific production.

But billionaires don't deserve to have the final say on arts and science funding in the first place. They don't deserve to be the people after whom libraries, art wings, or cancer research centers are named. Big donors are a tiny subset of the population — and terrifyingly skewed in terms of race, gender, and age — and it does our research no favors to be beholden to a funding structure that requires catering to their impulses.

In fact, most billionaires don't deserve their status at all, considering how the livelihoods of the 1 percent have been built on the backs of slavery, oppression, and tax evasion. Even the billionaires who aren't convicted criminals are guilty of the crime of being too rich in a country where around 40 million people live in poverty. We have become too used to seeing billionaire names plastered in large font across our hospitals, our theaters, our parks. The next time we walk past them, let us remember the staggering injustices these big names represent.

Students and faculty here have told me that billionaire funding "is what makes art and research possible." They forget that it is not billionaires but scientists, artists, and students who make art and research "possible." The debate over where we get our money should not be framed as simply a choice between "taking it" or "leaving it" — between bad money or no money at all — because all billionaire money is bad money. In the long term, failing to address the toxic nature of billionaire philanthropy is what will render the work universities do in advancing knowledge "impossible" because of the unsustainable moral hypocrisies it poses.

> **Robust public funding programs could be put in place with money taxed away from billionaires.**

We must imagine other possibilities. By addressing wealth inequality in society, a multitude of other funding options for cultural and scientific work might become possible. Robust public funding programs could be put in place with money taxed away from billionaires. Public funding might actually be able to reach more underserved communities who may be less likely to be able to tap into billionaire networks. In a more equitable society, institutions would also naturally become less reliant on the philanthropic whims of "super-donors."

Institutions all over the country have become too dependent on courting rich donors to stay afloat. To change this, we should not only take action within MIT but consider what we can do for this problem at large. Joi's resignation will not rid MIT or the Media Lab of the many other unsavory funding sources which tie us to labor exploitation, racism and misogyny. If we only implement internal changes, we risk sheltering ourselves in an ivory tower from the larger issues.

The university must not only assess their own funding policies, but consider what else MIT is doing, as a leading research institution, to tackle the problem of wealth disparity in the world. For individual students and faculty, there are many policy proposals and programs already out there for reducing inequality, and you can educate yourselves about them, and you can talk to your peers about them, and you can march in the streets for them.

Cynthia Hua is a graduate student in the MIT Media Lab's Poetic Justice Group.

ARTS WANTS YOU

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Uncovering bacterial evolution in our microbiome

How studying microbial mutations in the human body can lead to new advancements in medical therapies

By Lama Aoudi

The microbiome encompasses the genetic material of all the microbes living in and on us. Ask most biologists, and they'd share Dr. Tami Lieberman's earnest enthusiasm for the field's innumerable possibilities. Dr. Lieberman recently completed a post doctorate with professor Eric Alm and was appointed as MIT faculty a little over a year ago. She is currently an Assistant Professor at both the Institute for Medical Engineering and Science (IMES) and the Department of Civil and Environmental Engineering. As she put it:

There is enormous potential to engineer the microbiome to improve our human health, either by introducing natural bacteria that we are missing or synthesizing new bacteria. For example, creating a bacteria that secretes sunscreen whenever you're under the sun.

To do so, however, scientists must be able to understand and *predict* how the microbiome will behave. This is Dr. Lieberman's guiding question. Her group focuses on the evolution of bacteria in the human ecosystem by observing how various microbial strains colonize, adapt, and mutate in the human microbiome. Dr. Lieberman views her work as complementary to recent applied work in the field, such as fecal transplants. Fecal transplants have gained widespread attention for their near 90 percent efficacy in treating the gastrointestinal infection *C. difficile colitis*. In analogous terms, the therapy "plants a tree in a wiped out forest." However, little is understood about what would happen if a tree were introduced to an "already-thriving forest." This is where Lieberman's research fits in.

While the microbiome has been a consistent theme in Lieberman's research, her recent endeavors pave their own path. Her group aims to be able to reconstruct what has recently occurred in the human body by identifying which microbial mutations have accumulated. If successful, they would be able to (1) infer past transmissions from person to person and (2) infer the genes in the occurring mutations. Their wider-reaching, more theoretical objective is to characterize the capacity of evolution in our microbiome.

It is estimated that a billion new bacterial mutations are created every day in the human body. There are 10 trillion bacteria in the body, each of which have a million nucleotides of DNA, and each time each of these nucleotides replicate they have a one in a billion chance of mutation. While Dr. Lieberman asserts that most of these mutations don't do anything, "a few may [actually] hurt the bacteria," and most importantly, "some of these mutations enable bacteria to do even better at living in you."

Dr. Lieberman finds that research on how microbial strains adapt has been limited due to the shortcomings of current methods for accurately analyzing all possible evolutions (e.g. single-cell sequencing). Her group addresses this by isolating microbial cells into petri dishes. In this environment, the cells make fewer mutations and are easier to sequence. Then, a parsimonious model is used to infer past evolutionary history.

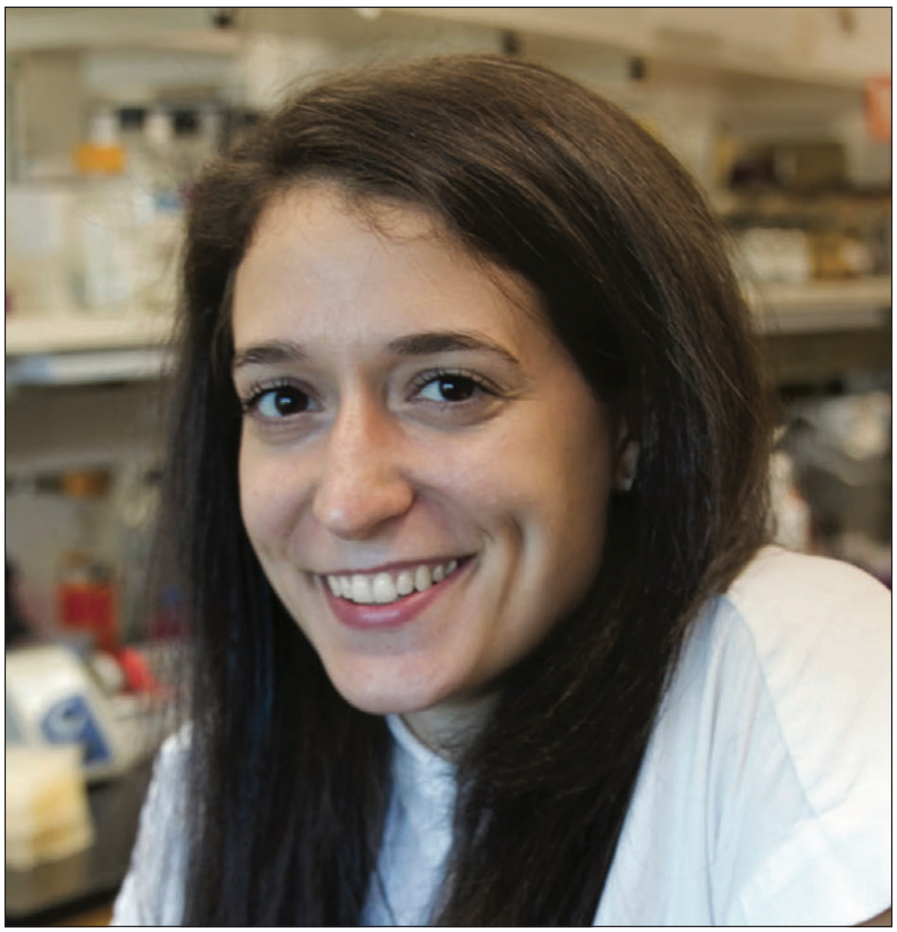
Skin Microbiome

"Acne doesn't kill as many people as cancer, but it sets up how people think about evidence." Dr. Lieberamn thinks of acne as most people's first experience with evidence-based medicine, and it is most often negative. This is because acne patients, in general, get prescribed medicine that does not work. "It's crazy how something so ubiquitous, we really don't understand. We need to fix this to have trust in medicine"

As universal a frustration as acne is, there remains limited medical consensus on the precise cause. Everyone has the underlying bacteria, *Cutibacterium acnes*, in their facial pores, so the question of "who will get acne?" remains open to study. Dr. Lieberman is currently conducting a study wherein children are monitored as they age, curious if any microbiome indicators predict whether or not the children will get acne. Lieberman is primarily interested in the number and type of strains that develop.

Colorectal Cancer

Most recent is the group's work on colorectal cancer. A consistent finding with colorectal cancer is the high abundance of the oral bacteria *Fusobacterium nucleatum* on almost every tumor. Evidence suggests that the tumor forms first, and then bacteria attaches to the tumor's sugars. By several mechanisms, the bacterial colonization accelerates the tumor genesis. Dr. Lieberman appropriately describes this as "an exciting opportunity to watch coevolution" — mutations in the bacteria result in mutations in the tumor. As a follow up, Dr. Lieberman asks the following questions: How did the bacteria get there? Was it a single transmission or multiple transmissions from the mouth to the gut? And do the bacteria acquire new mutations to allow them to live on the tumor?



JORDAN HARROD—THE TECH

The Lieberman Lab seeks to understand the human microbiome.

If the answer to the last question turns out to be yes, the group hypothesizes that therapies can be developed to weaken the adaptations necessary to survive on these nascent tumors and prevent the bacteria from colonizing altogether.

Atopic Dermatitis

The final project discussed is atopic dermatitis, better known as eczema. The disease is most common among children and is characterized by red, weepy, broken skin. A particular bacteria, *Staphylococcus aureus (staph)* thrives in the skin lesions, and its relative abundance has been found to correlate with the amount of eczema. Leiberman's group evaluates how staph adapts in these areas and how quickly it spreads from one location to another. Their preliminary results suggest that a specific gene mutation, found across different patients, causes the rapid spread of the disease. Once these genes are identified and understood, her group aims to develop therapies that target some of those pathways and reduces the growth of *Staphylococcus aureus.*

The methods she's refined are very clearly applicable across various medical interests and will prove to be career-changing. Best of all, her tenacity and raw enthusiasm is endlessly infectious. If all goes well, Lieberman hopes to apply her analysis to the development of more targeted and successful medical therapies.

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Party food and relationships

Supporting the MIT community, one query at a time: on food and finding love

By Tech Support

If you would like Tech Support to take a look at your problems, please submit them at http://bit.ly/techsupportadvice. Questions have been edited for length, clarity, and content.

Tech Support: Hello, how may I help you?

Reader: *I want to invite a few friends over for a party, but I don't have a huge budget. What food should I make or buy?*

Tech Support: Depending on what kind of party you are throwing, this may vary. For instance, if you plan on throwing the most amazing rager that MIT has seen since it was founded, you may not even have to worry about food.

In all seriousness though, if it is just a casual get-together, you can just get some snacks like chips and dip (such as Tostitos's deliciously fake cheese dip) or a cheese and cracker plate; you could also make a fruit salad if you want to be healthier. If it is a more dinner-type thing, you could do something like a taco or pasta bar, or even make it a potluck so that everyone brings something. In fact, this latter option would essentially kill two birds with one stone, as it is both low-budget *and* creates variety while making everyone feel like they are contributing.

You can also make some chocolate chip cookies with ice cream on top for a quick dessert that most everyone will enjoy if all else fails. But don't stress out about it too much — there are plenty of low-budget options out there, so no need to worry. If you're inviting good friends over, the company should make it much more enjoyable as well.

Reader: *As I get older, I see more and more of my friends getting boyfriends/girlfriends, and it honestly makes me kind of depressed sometimes. How can I stop myself from feeling bad about this, and how does one even get a significant other in the first place?*

Tech Support: I think that one of the first things to ask yourself here is this: what kind of place am I in mentally right now? By no means do you need to have your life together to be in a relationship, but if you have very low self-esteem and don't like yourself, it can be difficult to be in a relationship. You will rely on the other person to provide love to you and end up accepting less than you deserve (and you, my friend, are awesome).

Assuming you've got that under control, though, it can be helpful to identify other single friends to hang out with so that you feel less lonely. There is nothing wrong with being single, and relationships are not always as easy as they seem when you're looking at couples. (I'm not saying they aren't worth trying, but the grass is always greener on the other side.) Even platonic relationships can be a way to "prepare" you for romantic relationships, as they both require caring about somebody beyond yourself to a deeper extent.

As for your question on how to even get an S.O. in the first place, I truly believe that if you can just be yourself and focus on doing what you enjoy, everything else will follow. People will see the energy that comes from you when you are doing things that you actually enjoy doing, and that in turn will attract the right people. Additionally, be open and expose yourself to opportunities to meet a wide range of people, romantically or not. Get to know more people, whether or not you're attracted to them, because that also allows you to practice interacting with others and see all the different kinds of people out there.

And if one day down the road there is someone who catches your fancy, then having done all this will have prepared you to act on that opportunity when it arises. In the meantime, just live your life and don't worry about it too much — there are plenty of people out there, and I'm sure you, as an MIT student, have a lot on your plate anyway.

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Washer

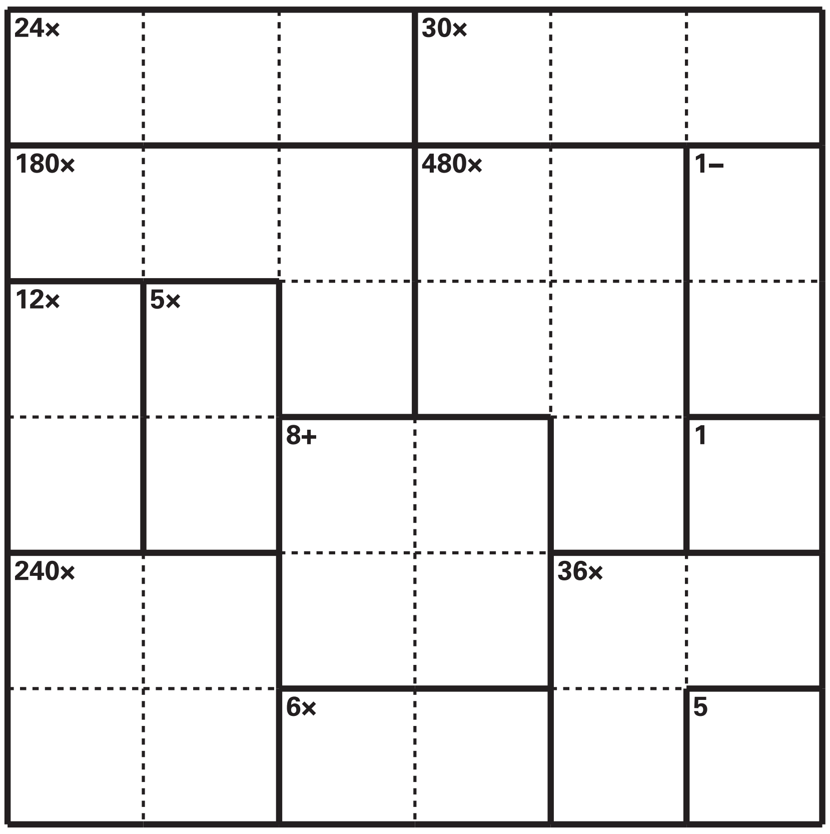
Solution, page 11

7	4		6			3	1	
				9			6	
8					4		5	
		7			6			2
	2		7		9		3	
1			2			9		
	8		4					5
	7			6				
	1	3			2		4	6

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

Dryer

Solution, page 11

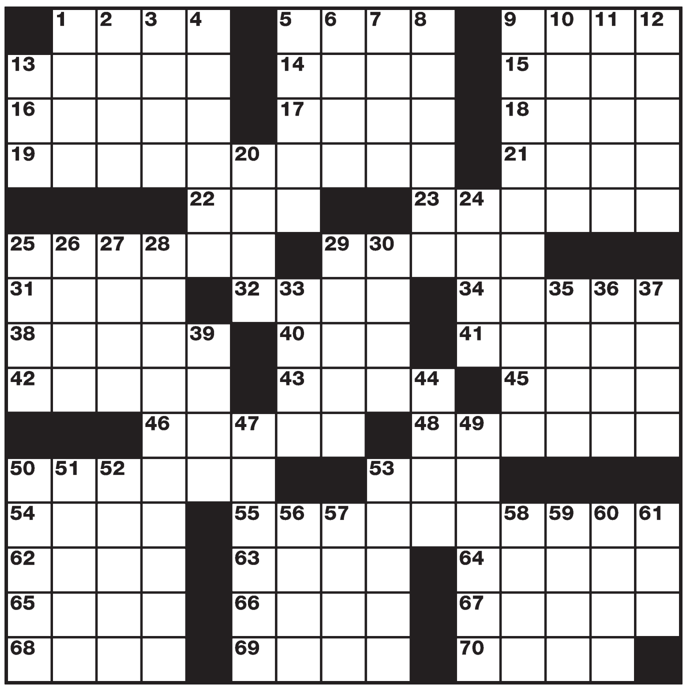


24×			30×		
180×			480×		1–
12×	5×				
		8+			1
240×				36×	
		6×			5

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

For The Weather by Sally R. Stein

Solution, page 11



■	1	2	3	4	■	5	6	7	8	■	9	10	11	12
13					■	14				■	15			
16					■	17				■	18			
19					20					■	21			
■	■	■	■	22			■	■	23	24				
25	26	27	28			■	29	30				■	■	■
31				■	32	33			■	34		35	36	37
38				39	■	40			■	41				
42					■	43			44	■	45			
■	■	■	46		47			■	48	49				
50	51	52				■	■	53			■	■	■	■
54				■	55	56	57				58	59	60	61
62				■	63				■	64				
65				■	66				■	67				
68				■	69				■	70				■

ACROSS

1 Measure of carbs or protein
5 Numerical fact, for short
9 Thin lock of hair
13 Boxing match site
14 Sugar lump's shape
15 Turn __ (become)
16 One eating at a restaurant
17 More than
18 Cozy corner
19 Blizzard cleanup machine
21 Sand hill
22 Once around a track
23 Creator of a pearl
25 Church steeples
29 Winfrey of TV
31 Alan of M*A*S*H
32 Angry, informally
34 Become edible, as fruit
38 __ as a rock (reliable)
40 Round green veggie
41 Dig deeply
42 "Laughing" African beast
43 Spanish bull
45 Hawaiian garlands
46 Impolite
48 Foot-operated levers
50 Curved parts of feet
53 Rowboat blade
54 Parcel (out)
55 Beachgoer's eyewear
62 Grand-scale story
63 And others: Abbr.
64 No longer edible
65 Quick kiss
66 Identical
67 National bird
68 Sounds of disapproval
69 Backyard tool building
70 Sandwich breads

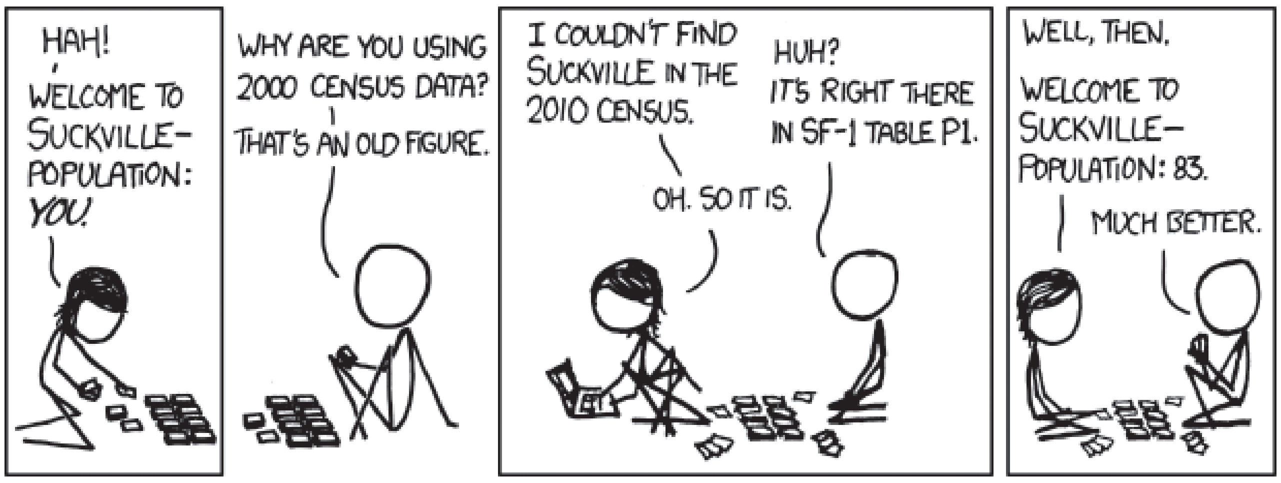
DOWN

1 Big smile
2 Nevada casino city
3 All over again
4 Rock used for sculptures
5 Ice-cream serving utensil
6 Letters after S
7 Busy as __
8 "Holy" brat
9 Auto's front glass
10 Come __ of the rain (dry off)
11 Boulder or pebble
12 Card game with flushes
13 Billboard displays
20 Young girl
24 Three-foot measure
25 Wide belt
26 Ruse
27 Not doing anything
28 Tickets for postponed baseball games
29 Triple-decker cookies
30 Bosc or Bartlett
33 __ out (declines to participate)
35 "Not guilty," for one
36 Wicked
37 Loch __ monster
39 Act boldly
44 White gem
47 Evaluate
49 Pencil mark remover
50 Highly skilled
51 Tug-of-war cords
52 Computer mouse sound
53 Stared at
56 Great Salt Lake's state
57 John, Jane, or Jackson
58 Remain
59 Wise person
60 Letters after kays
61 Take a look at

A WEBCOMIC OF ROMANCE, SARCASM, MATH, AND LANGUAGE

by Randall Munroe

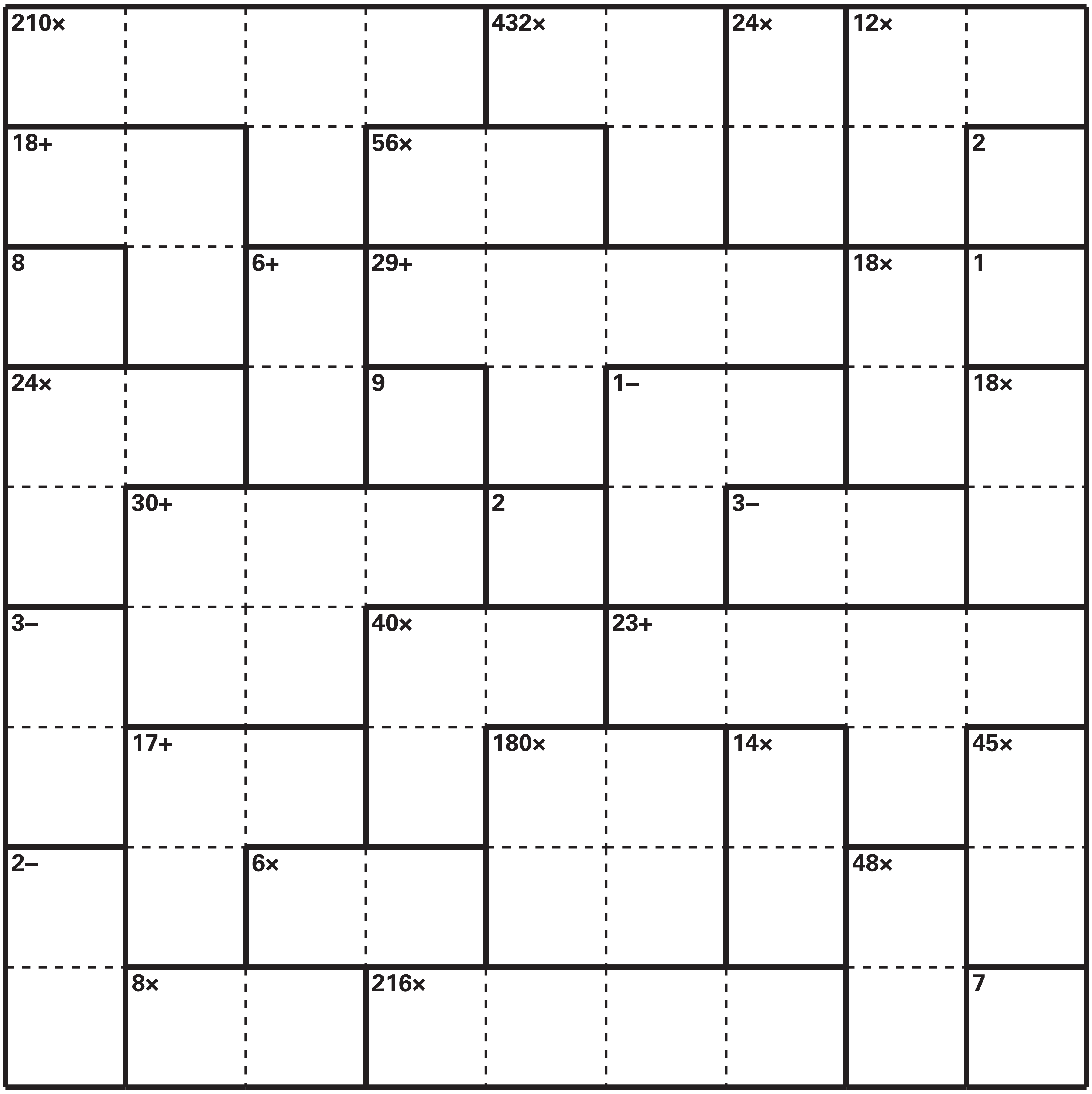
[1008] Suckville


HAH!
WELCOME TO SUCKVILLE– POPULATION: YOU!
WHY ARE YOU USING 2000 CENSUS DATA?
THAT'S AN OLD FIGURE.
I COULDN'T FIND SUCKVILLE IN THE 2010 CENSUS.
HUH? IT'S RIGHT THERE IN SF-1 TABLE P1.
OH. SO IT IS.
WELL, THEN.
WELCOME TO SUCKVILLE– POPULATION: 83.
MUCH BETTER.

Suckville is considered by the Census Bureau to be part of the Detroit metropolitan statistical area, despite not being located anywhere near Detroit.

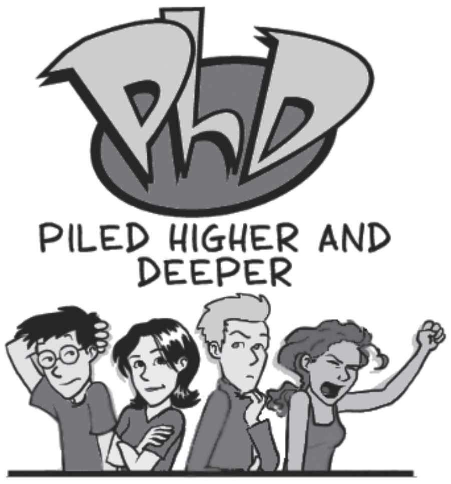
Laundry

Solution, page 11

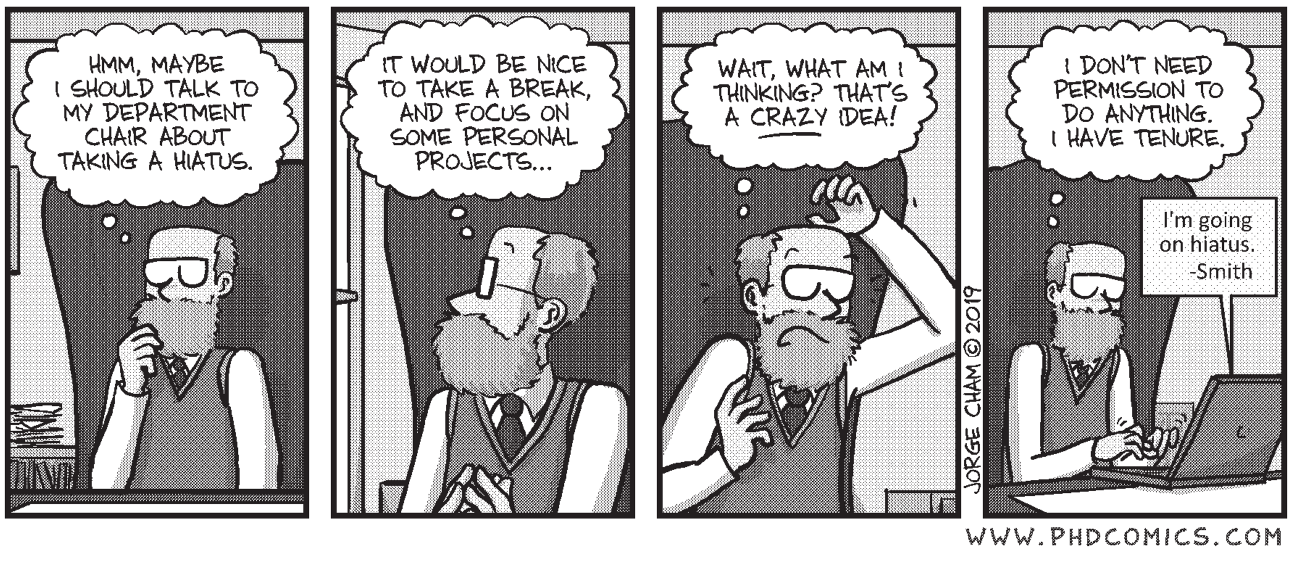


210×				432×		24×	12×	
18+			56×					2
8		6+	29+				18×	1
24×			9		1−			18×
	30+			2		3−		
3−			40×		23+			
	17+			180×		14×		45×
2−		6×					48×	
	8×		216×					7

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–9. Follow the mathematical operations for each box.


PhD
PILED HIGHER AND DEEPER

by Jorge Cham


HMM, MAYBE I SHOULD TALK TO MY DEPARTMENT CHAIR ABOUT TAKING A HIATUS.
IT WOULD BE NICE TO TAKE A BREAK, AND FOCUS ON SOME PERSONAL PROJECTS...
WAIT, WHAT AM I THINKING? THAT'S A CRAZY IDEA!
JORGE CHAM ©2019
I DON'T NEED PERMISSION TO DO ANYTHING. I HAVE TENURE.
I'm going on hiatus. -Smith
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info session

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sidney pacific
graduate community

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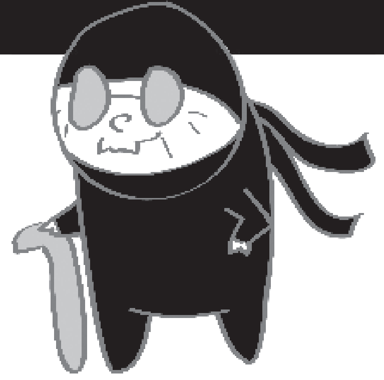
should say grammar



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101 THINGS TO DO
BEFORE YOU GRADUATE

32. Take a stroll through
Little Italy in the North End

Join the Arts department at *The Tech* and write restaurant reviews.

(And get reimbursed for your meal!)

Solution to Weather

from page 8

■	G	R	A	M	■	S	T	A	T	■	W	I	S	P
A	R	E	N	A	■	C	U	B	E	■	I	N	T	O
D	I	N	E	R	■	O	V	E	R	■	N	O	O	K
S	N	O	W	B	L	O	W	E	R	■	D	U	N	E
■	■	■	■	L	A	P	■	■	O	Y	S	T	E	R
S	P	I	R	E	S	■	O	P	R	A	H	■	■	■
A	L	D	A	■	S	O	R	E	■	R	I	P	E	N
S	O	L	I	D	■	P	E	A	■	D	E	L	V	E
H	Y	E	N	A	■	T	O	R	O	■	L	E	I	S
■	■	■	C	R	A	S	S	■	P	E	D	A	L	S
A	R	C	H	E	S	■	■	O	A	R	■	■	■	■
D	O	L	E	■	S	U	N	G	L	A	S	S	E	S
E	P	I	C	■	E	T	A	L	■	S	T	A	L	E
P	E	C	K	■	S	A	M	E	■	E	A	G	L	E
T	S	K	S	■	S	H	E	D	■	R	Y	E	S	■

Solution to Washer

from page 8

7	4	5	6	2	8	3	1	9
2	3	1	5	9	7	4	6	8
8	6	9	3	1	4	2	5	7
3	9	7	1	4	6	5	8	2
4	2	8	7	5	9	6	3	1
1	5	6	2	8	3	9	7	4
6	8	2	4	3	1	7	9	5
9	7	4	8	6	5	1	2	3
5	1	3	9	7	2	8	4	6

Solution to Dryer

from page 8

1	6	4	3	5	2
3	2	6	5	1	4
2	1	5	4	6	3
6	5	3	2	4	1
5	4	2	1	3	6
4	3	1	6	2	5

Solution to Laundry

from page 9

2	7	5	1	9	8	6	3	4
9	5	3	8	7	6	4	1	2
8	4	2	7	6	5	3	9	1
1	6	4	9	8	7	5	2	3
4	9	7	3	2	1	8	5	6
6	2	9	5	4	3	1	7	8
3	8	6	2	1	9	7	4	5
7	3	1	6	5	4	2	8	9
5	1	8	4	3	2	9	6	7

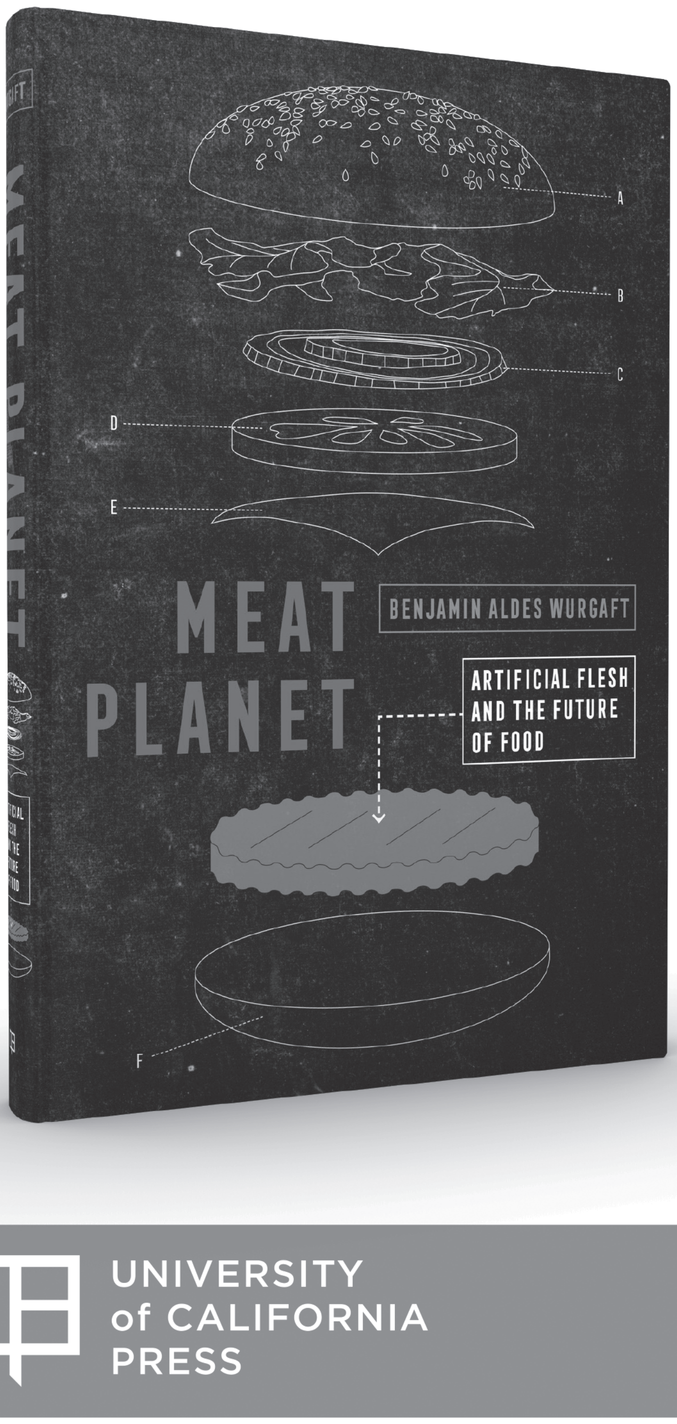
ROW FOR MIT
No Experience Necessary; Only Drive & Desire Required

Startup Events @ Pierce Boathouse

Boathouse Barbeque
All Welcome
Thursday 8/29 @ 4:00pm

Informational Meeting
Required for those interested in trying out
Wednesday 9/4 @ 5:30pm

Or Email: *novicecrew@mit.edu* for more info



NEW FROM UC PRESS

A provocative inquiry into the issues surrounding the future of cultured meat based on inside access to Silicon Valley-funded labs.

"a **thoughtful** study mixing **science reportage** with **philosophical meditations**."
—*Nature*

"a **powerful** lens for examining the **future of food**."
—Nicola Twilley, cohost of *Gastropod*

"A **welcome, wide-ranging, illuminating** reflection on the changes underway in how we think about and produce edible animal flesh."
—Harold McGee, author of *On Food and Cooking*

Meat Planet explores the quest to generate meat in the lab—a substance sometimes called "cultured meat"—and asks what it means to imagine that this is the future of food. Benjamin Wurgaft tells a story that could utterly transform the way we think of animals, the way we relate to farmland, the way we use water, and the way we think about population and our fragile ecosystem's capacity to sustain life.

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GLOBAL CLIMATE STRIKE ■ 全球氣候罷課 ■ MOVILIZACIÓN MUNDIAL POR EL
CLIMA ■ GLOBALER KLIMASTREIK ■ GRÈVE MONDIALE POUR LE CLIMAT ■ JEDA UNTUK IKLIM ■ MOBILI-
ZAÇÃO GLOBAIS PELO CLIMA ■ グローバル気候マーチ ■ GLOBAL CLIMATE STRIKE ■

http://bit.ly/mitstrike2019

GLOBAL CLIMATE STRIKE

Friday Sep. 20
10:45am
Outside MIT W20
Student Center

Business as usual is destroying the planet.

Reject business as usual!

Strike to demand climate justice!

1. Rally at the Student Center at 10:45
2. March through campus at 11:00
3. Join the Boston Climate Strike at City Hall Plaza

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